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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/407,136	09/27/1999	VADIM SHTEYNBERG	99RE036	2345

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 06/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/407,136

Applicant(s)

SHTEYNBERG ET AL.

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4-8 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4-8,21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. The applicants' amendment (Paper No. 17) filed on 4/11/02 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 depends from Claim 30, which is nonexistent. NOTE: Apparently, applicants' intended for Claim 6 to depend from Claim 4 and Claim 6 has been examined on the merits as such.
4. Claims 6 and 21 objected to because of the following informalities: in Claim 6, the phrase "re arranged" (line 5) is misspelled and should be only one word, i.e. --rearranged--. In Claim 21, the term "dispense" (line 2) is misspelled and should be replaced with --dispenser--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 4-8 and 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 6, the combination of steps C and B of “continuously winding the plurality of segments” (line 7) simultaneously or at the same time during “rotating at least one of the plurality of segments” (line 5) is new matter. The specification, as originally filed, does not provide support for continuously winding the plurality of segments simultaneously while rotating the plurality of segments and a wire dispenser relative to each other. The specification does not even define the term “continuously” and what is encompassed by winding all of the segments together “continuously”.

7. Claims 2, 6, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 2, the variable “N”, as this refers to both an “N phase electromechanical device” (line 2) in the preamble and “N sets of stator segments” (line 3), is confusing, misleading and raises uncertainties as to what number N is referring to. Is “N” referring to the number of phases of an electromechanical device, or is it referring to the number of sets of segments? The same problems above with Claim 1 also occur in Claim 23.

In Claim 6, the variable “N times” (line 2), as this refers to both the “number of phases of the electromechanical device” (lines 2-3) and to the number of “N sets of M segments” (line 3),

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is confusing, misleading and again raises uncertainties as to what number N is referring to. How is it possible that N can refer to both number of phases of an electromechanical device and to number of sets of segments, at the same time?

The examiner maintains that the use of the single variable "N" in the claims to represent more than one variable, as discussed above, is confusing and misleading rendering the claims as being vague and indefinite.

Claim Rejections - 35 USC § 103

8. Claims 2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Searle in view of Varley 1,073,059.

Regarding Claims 2 and 4, Searle discloses a method of constructing a segmented wound member (motor) of a three-phase electromechanical device comprising: winding stator segments in which each segment defines a bobbin 2 and the segments 2 are wound with a single continuous length of wire 30 (shown in Fig. 2); arranging the segments 2 along a centerline axis of rotation of the winding dispenser 28 (in Fig. 2) where the segments wound form at least 3 sets of segments; rotating the segments 2 and a wire dispenser 28 relative to each other about the centerline axis of rotation by rotating the wire dispenser around each of the segments 2 (see col. 4, lines 14-20); continuously winding the segments during the relative rotation of the wire dispenser around the segments (shown in Fig. 2); repeating the arranging step and the winding step for each of the two remaining sets of segments of the three sets of segments; and combining the segments 2 in a common circular arrangement and electrically in series to form the wound member (shown in Fig. 3). Searle teaches that the electromechanical device has 3 phases (see

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col. 4, lines 52-60) with 12 wound segments or bobbins 2. One set of segments is read as being equal to four segments or bobbins 2. As shown in Figure 3, Searle forms three sets of four segments for a total of twelve segments (bobbins 2). Accordingly, Searle can be said to wind one set of four segments separately from the other two remaining sets of four segments, to combine all three sets of segments into the common circular arrangement shown in Figure 3.

Regarding Claim 5, Searle shows that each of the segments 2 of the plurality of segments is wound from a continuous length of wire 30 from the wire dispenser 28 (in Fig. 2).

Regarding Claim 6 as best understood, Searle shows that each of the set of segments 2 can be read as four segments, and that the above arranging, winding and combining steps are performed at least *three* times, which is equal to the number of phases of the electromechanical device (3 phase, 12 pole motor, see col. 4, lines 52-56). As shown in Figure 3, Searle forms three sets of four segments to form a total of twelve segments 2. The number of twelve segments is equal to the number of poles (12 poles) of the electromechanical device, as all of these sets of segments are combined into the common circular arrangement.

Regarding Claims 2, 4, 5 and 6, Searle teaches substantially of the limitations of the claimed manufacturing method except that within the step of arranging, the segments 2 are in a *side-by-side orientation* along the axis of rotation.

Varley teaches that multiple segments (formers 3) can be arranged in a *side-by-side orientation* along a common, centerline axis of rotation (centerline of shaft 2 shown in Fig. 7) for the purpose of winding a plurality of segments. The benefits of such side-by-side winding process allow the segments to be accurately formed with any desired gage of wire (see page 1 of disclosure, lines 70-75).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Searle, by arranging and winding the segments in a direct *side-by-side* relationship along a common, centerline axis of rotation, as taught by Varley, to positively wind a plurality of segments with greater accuracy and with any desired gage of wire.

9. Claims 7, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Searle in view of Varley, as applied to Claims 2 and 4 above, and further in view of Japanese Patent Publication JP 60-182119, referred to hereinafter as JP'119.

Searle, as modified by Varley, teaches the claimed manufacturing method as previous discussed. The modified Searle method does not teach that the segments rotate relative to the wire dispenser with the wire dispenser remaining substantially stationary.

JP'119 teaches the conventional concept of rotating the actual segments 2a, 2b, 2c, 2d itself while the wire dispenser remains stationary (shown in Fig. 5) to form a wound member from a continuous length of wire 1 (see arrow indicating rotation of the segments in Fig. 8). Such an advantage of the JP'119 winding concept provides a wound member without decreasing the magnetic characteristics (discussed in PURPOSE). Furthermore, whether the wire dispenser rotates and each segment is stationary or that the wire dispenser is stationary and each segment rotates, each of these winding concepts are considered to be art recognized equivalents in producing a wound member.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified each of the methods of Searle by utilizing the winding concept of JP'119, to positively form the wound member without decreasing the magnetic

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characteristics. Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the wound members of Searle by either (1) keeping each of the segments stationary and rotating the wire dispenser, or (2) keeping the wire dispenser stationary and rotating each of the segments, as each is considered to be art recognized equivalents in forming wound segments.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Searle in view of Varley, as applied to Claim 4 above, and further in view of Japanese Patent Publication JP 57-42112, referred to hereinafter as JP'112.

Searle, as modified by Varley, teaches the claimed manufacturing method as previous discussed. The modified Searle method does not teach moving the wire dispenser along an axis that is parallel to the axis of rotation.

JP'112 teaches, by the use of an X-Y table 20 (shown in Fig. 4), that the winding dispenser (nozzle 7) moves in an X-direction which is parallel to the arrangement of segments 3 in a side-by-side relationship. The X-axis (shown in Figures 10 and 11) is considered to be the centerline of the segments and the axis of rotation of which the segments are wound around as the winding dispenser (nozzle 7) moves parallel to this axis of rotation to wind the multiple segments. The benefits of such a winding process allow the multiple segments to be wound continuously (see Abstract and Constitution).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have changed the modified Searle method by moving the wire dispenser in a direction parallel to the axis of rotation, as taught by JP'112, to achieve the same function of winding multiple segments and advantageously wind the multiple segments continuously.

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11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Searle in view of JP'112.

Searle discloses a method of constructing a segmented wound member of a three phase electromechanical device comprising: winding segments in which each segment defines a bobbin 2 and the segments are wound with a single continuous length of wire 30 (shown in Fig. 2); arranging the segments 2 along a centerline axis of rotation of the winding dispenser 28 (in Fig. 2); rotating the segments 2 and a wire dispenser 28 relative to each other about the centerline axis of rotation by rotating the wire dispenser around each of the segments 2 (see col. 4, lines 14-20); winding the segments during the relative rotation of the wire dispenser around the segments (shown in Fig. 2); repeating the arranging step, rotating step, and winding step for each of the two remaining sets of segments of the three sets of segments; and combining the segments 2 in a common circular arrangement to form the wound member (shown in Fig. 3). Searle teaches that the electromechanical device has 3 phases (see col. 4, lines 52-60) with 12 wound segments or bobbins 2. One set of segments is read as being equal to four segments (bobbins 2). As shown in Figure 3, Searle forms three sets of four segments for a total of twelve segments (bobbins 2). Accordingly, Searle can be said to wind one set of four segments separately from the other two remaining sets of four segments, to combine all three sets of segments into the common circular arrangement shown in Figure 3.

Searle does not teach that the segments are arranged in a side-by-side orientation along a single axis of rotation and moving the wire dispenser in a direction parallel to the axis of rotation to a position adjacent to the next segment.

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JP'112 teaches a winding process, by the use of an X-Y table 20 (shown in Fig. 4), in which the winding dispenser (nozzle 7) moves in an X-direction parallel to the arrangement of segments 3 in a side-by-side orientation, and in a Y-direction around the segments 3 to wind the segments (as shown in Figs 7 and 8). The X-axis (shown in Figures 10 and 11) is considered to be the centerline axis of rotation of the segments in the side-by-side orientation of which the segments are wound around as the winding dispenser (nozzle 7) moves parallel to this axis of rotation. JP'112 further teaches the step of moving the wire dispenser parallel to the axis of rotation of the centerline of segments (X-direction) to a position of the next segment 3, then returning to the winding step to wind the next segment 3, such that the winding step and the moving step are performed until all of the segments are wound (shown in the sequence of Figures 9-12). The benefits of such a winding process allow the multiple segments to be wound continuously (see Abstract and Constitution).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Searle by utilizing the winding process which includes arranging the segments in a side-by-side orientation along a single axis of rotation and moving the wire dispenser in a direction parallel to the axis of rotation to a position adjacent to the next segment, as taught by JP'112, to achieve the same function of winding multiple segments and advantageously wind the multiple segments continuously.

Response to Arguments

12. Applicant's arguments filed 4/11/02 (Paper No. 17) have been fully considered but have not been deemed to be found as persuasive.

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In response to applicant's argument that there is no suggestion to combine the references or that the examiner has not presented a convincing line of reasoning as to why one of ordinary skill in the art would find the combination of Searle and Varley obvious, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the examiner's reliance of the side by side winding arrangement of Varley has at least the advantage of the segments being accurately formed with any desired gage of wire (page 1, lines 70-75).

With respect to the Searle reference and the limitations of "continuously winding the plurality of segments...with one another" (last 3 lines of Claim 4), Searle does show in Figure 3 that 3 sets of 4 segments form a total of twelve segments 2. This number of 12 segments is equal to the number of poles (12 poles) of the electromechanical device, as all of these sets of segments are combined electrically in series into the common circular arrangement.

In regards to the merits of JP'112, the applicants contend that shaft 28 of JP'112 does not rotate and thus, cannot be combinable with Searle and Varley. The examiner most respectfully disagrees. Not only does JP'112 show the segments in a side-by-side relationship (in Figs. 7 and 8), but JP'112 also teaches the use of a rotating drum 19, which rotates the segments (see Constitution). The arrow shown in Figure 3 at the top left corner indicates the rotation of the drum 19. Accordingly, the combination of Searle, Varley and JP'112 does satisfy all of the

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limitations of Claim 23 including "arranging a plurality of segments in a side-by-side orientation along an axis of rotation" (lines 7-8).

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

adt

June 19, 2002

A handwritten signature in black ink, appearing to read 'PETER VO', with a long horizontal flourish extending to the right.

PETER VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700